UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,587	08/18/2003	Peter M. Klausler	1376.717US1	4009

21186   7590   10/31/2007
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ARCOS, CAROLINE H

ART UNIT	PAPER NUMBER
2195	

MAIL DATE	DELIVERY MODE
10/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _13 August 2007_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-24_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-24_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _13 August 2007_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-24 are pending.

2.   The drawing filed on 8/13/07 is accepted by examiner.

3.   The related copending application filed on 8/13/07 in the amendment to

specification, need to updated with updated status (i.e. US patent #) or pending

application.

Correction is required.

Double Patenting

4.   The non-statutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees.   A nonstatutory
obviousness-type double patenting rejection is appropriate where the conflicting claims
are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated
by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140
F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.
1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422
F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ
644 (CCPA 1969).

5.   A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d)
may be used to overcome an actual or provisional rejection based on a nonstatutory
double patenting ground provided the conflicting application or patent either is shown to
be commonly owned with this application, or claims an invention made as a result of
activities undertaken within the scope of a joint research agreement.

6.   Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7.   Claims 1,3, 5-9, 11, 13-17, 19, 21-24 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-8, 10-15, 17-21of copending Application No. 10/643,769 and in view of Gillespie (US 6,269,391). Although the conflicting claims are not identical, they are not patentably distinct from each other because both scheduling system comprises substantially the same elements. For example, Claim 1 functions performed by the steps are the same and obvious as the steps of claim 1 of copending application No. 10/643,769 (Starting a process within an operating system, starting a plurality of program/ at least one thread, the program units/the thread associated with the process, and upon occurrence of a context shifting event for a first program unit of the plurality of program units / entering a kernel mode by a first stream of the plurality of streams upon occurrence of context shifting event).

8.   The instant application doesn't state executing a plurality of streams within the thread, entering a kernel mode, if the first stream entering the kernel mode must block then blocking the execution of the other streams of the plurality of streams.

9.   However, Gillespie teaches executing a plurality of streams within the thread (Col. 5, lines 5-6), entering kernel mode (col. 3, lines 15-17; Col. 3, lines 36-38), if the first stream must block then blocking the execution of

the other streams of the plurality of streams (abs, lines 7-9)

One of ordinary skill in the art would be motivated to divide the thread into

streams block the rest of the streams if the first stream gets blocked to improve

scheduling techniques and improve CPU usage.

10.   This is a <u>provisional</u> obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented. Double patenting rejection remains

until a proper terminal disclaimer is filed.

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 1-24 rejected under 35 U.S.C. 103(a) as being unpatentable over

Gillespie (US 6,269,391) and in view of Alverson et al. (Alverson) (US 6,952,827 B1).

13.   As per Claim 1,Gillespie teaches the invention substantially as a method for

scheduling program units (Col 3, lines 21-23), the method comprising:

Starting a process within an operating system (Col1, line 56-58; Col 4, lines 18-

19);

Starting a plurality of program units within the operating system, the program

units associated with the process system (Col 1, line 56-58; Col 3, lines 32-33; Col 4,

lines 18-19);

Upon the occurrence of a context shift event, (Col 3, lines 36-38)

Synchronize the scheduling of each of the plurality of program units (Col 3, lines 35-37;

Col 7, line 36-37);

Setting the context of each of the plurality of program units to process the context

shift event (Col 3, lines 45-53) Where "thread-control object" is the context of each

of the plurality of program units as claimed.

14.   Gillespie did not specifically teach that the context shift event is for a first

program unit of the plurality of program units, and each of the program units process the

same context shifting event as the first program unit.

15.   However, Alverson teaches the invention the system that the occurrence of a

context shift event is for a first program unit of the plurality of program units (Col 5, lines

28-29), and each of the program units process the same context shifting event as the

first program unit. (Col 5, lines 29-36).

16.   It would have been obvious to one of ordinary skill in the art at the time of the

invention was made to have combined the teachings of Gillespie and Alverson

because Alverson teaching of context shift event is for a first program unit of the

plurality of program units, and that the program units process the same context shifting

event as the first program unit will improve threads scheduling techniques, threads

reliability and allow the threads to restart efficiently in a later time.

17.   As per Claim 2, Gillespie teaches the program unit comprises a thread (Col 3,

lines 32-33).

18.   As per Claim 3, Gillespie teaches that at least one thread is executed on

a separate processor from the processor executing at least one other thread. (Col 1,

lines 65-67; Col 3, lines 32-33).

19.   As per Claim 4, Gillespie teaches the processors executing the threads reside on

at least a first multiple processor unit and a second multiple processor unit (Col 1, lines

65-67; Col 4, line 63-67). In addition, Gillespie teaches migrating threads executing on

the second multiple processor unit to the first multiple processor unit (Col 1, lines 41-44)

20.   As per Claim 5, Gillespie teaches the context-shifting event comprises

an exception (Col4, line 26-27) where "interrupt" is an "exception" as claimed.

21.   As per Claim 6, Gillespie teaches wherein the exception comprises a signal

(Col 5, lines 58-59), where " a yield signal" is an " interrupt", and " an interrupt" is an

"exception" that created a signal as claimed.

22.   As per Claim 7, Alverson teaches the invention wherein the context-shifting event

comprises a non-local go. (Col 18, lines 40-45).

23.   As per Claim 8, Alverson teaches the invention as wherein the context-shifting

event comprises a system call. (Col 9, lines 25-30), where swapping in tasks is a

context Shifting event as claimed.

24.   As per claims 9-16, they are system claims of claims 1-8 respectively. Therefore,

they are rejected for the same reason as claims 1-8 above.

25.   As per claims 17-24, they are computer readable medium claims of claims

1-8 respectively. Therefore, they are rejected for the same reason as claims 1-8 above.

Claim Rejections - 35 USC § 103

26.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

27.   Claims 1-24 rejected under 35 U.S.C. 103(a) as being unpatentable over

Gillespie (US 6,269,391) and in view of Gail et al. (Gail) (Tera Hardware-Software

Cooperation, ACM, 1997, pages 1-16)

28.   As per Claim 1,Gillespie teaches the invention substantially as a method for

scheduling program units (Col 3, lines 21-23), the method comprising:

       Starting a process within an operating system (Col1, line 56-58; Col 4, lines 18-

19);

       Starting a plurality of program units within the operating system, the program

units associated with the process system (Col 1, line 56-58; Col 3, lines 32-33; Col 4,

lines 18-19);

       Upon the occurrence of a context shift event, (Col 3, lines 36-38)

Synchronize the scheduling of each of the plurality of program units (Col 3, lines 35-37;

Col 7, line 36-37);

       Setting the context of each of the plurality of program units to process the context

shift event (Col 3, lines 45-53) Where "thread-control object" is the context of each

of the plurality of program units as claimed.

29.   Gillespie did not specifically teach the occurrence of a context shift event is for a

first program unit of the plurality of program units, and each of the program units

process the same context shifting event as the first program unit.

30.   However, Gail teaches a system that the occurrence of a context shift

event, for a first program unit of the plurality of program units (Sub-section 3.3;

swapping, page 8, lines 1-3) where all streams include a first program unit of the

plurality of program units as claimed, and each of the program units process the

same context shifting event as the first program unit. (Sub-section 3.3; swapping, page

31.   It would have been obvious to one of ordinary skill in the art at the time of the

invention was made to have combined the teachings of Gillespie and Gail

because Gail teaching of upon the occurrence of a context shift event, for a

first program unit of the plurality of program units and that the program units

process the same context shifting event as the first program unit which improve threads

scheduling techniques, threads reliability and allow the threads to restart efficiently in a

later time.

32.   As per Claim 2, Gillespie teaches the program unit comprises a thread (Col 3,

lines 32-33).

33.   As per Claim 3, Gillespie teaches that at least one thread is executed on

a separate processor from the processor executing at least one other thread. (Col 1,

lines 65-67; Col 3, lines 32-33).

34.   As per Claim 4, Gillespie teaches the processors executing the threads reside on

at least a first multiple processor unit and a second multiple processor unit (Col 1, lines

65-67; Col 4, line 63-67). In addition, Gillespie teaches migrating threads executing on

the second multiple processor unit to the first multiple processor unit (Col 1, lines 41-44)

35.   As per Claim 5, Gillespie teaches the context-shifting event comprises

an exception (Col4, line 26-27) where "interrupt" is an "exception" as claimed.

36.   As per Claim 6, Gillespie teaches wherein the exception comprises a signal

(Col 5, lines 58-59), where " a yield signal" is an " interrupt", and " an interrupt" is an

"exception" that created a signal as claimed.

37.   As per Claim 7, Gail teaches the invention wherein the context-shifting event

comprises a non-local go (Page 14, lines 4-6), where jumping to where the original

instruction would have ended up, and (Sub-section 4.4, privilege-level change, page 11,

lines 2-5), and (sub-section 4.4, privilege-level change, page 12, lines 1-2), wherein

system call is non-local goto.

38.   As per Claim 8, Gail teaches the invention as wherein the context-shifting

event comprises a system call. (Sub-section 4.4, privilege-level change, page 11, lines

2-5), and (sub-section 4.4, privilege-level change, page 12, lines 1-2), wherein

changing privilege- level is a context shift.

39.   As per claims 9-16, they are system claims, corresponding to the method claims

1-8 respectively. Therefore, they are rejected for the same reason as claims 1-8.

40.   As per claims 17-24, they are system claims, corresponding to the method claims

1-8 respectively. Therefore, they are rejected for the same reason as claims 1-8.

Conclusion

41.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

   Joy at al. (US 20020078122 A1) teaches switching method in a multi-threaded

   processor.

   Hirono et al.(US 6910213 B1) teaches program control apparatus and method and

   apparatus for memory allocation ensuring execution of a process exclusively and

   ensuring real time operation, without locking computer system.

Response to Argument

42.   Applicant's arguments with respect to claims 1-24 have been considered but are

moot in view of the new ground(s) of rejection

43.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP ~ 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

44.   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and

any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

date of the advisory action. In no event, however, will the statutory period for reply

expire later than SIX MONTHS from the date of this final action.

45.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Caroline Arcos whose telephone number is 571-270-

3151. The examiner can normally be reached on Monday-Thursday 7:30 AM to 5:30

PM.
46.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

47.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent examiner

Caroline Arcos

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100